

(12) UK Patent Application (19) GB (11) 2 124 168 A

(21) Application No 8221926

(22) Date of filing

29 Jul 1982

(43) Application published

15 Feb 1984

(51) INT CL³ A62B 1/20

(52) Domestic classification

B7J 118

(56) Documents cited

GB 1467988

GB 1457280

(58) Field of search

B7J

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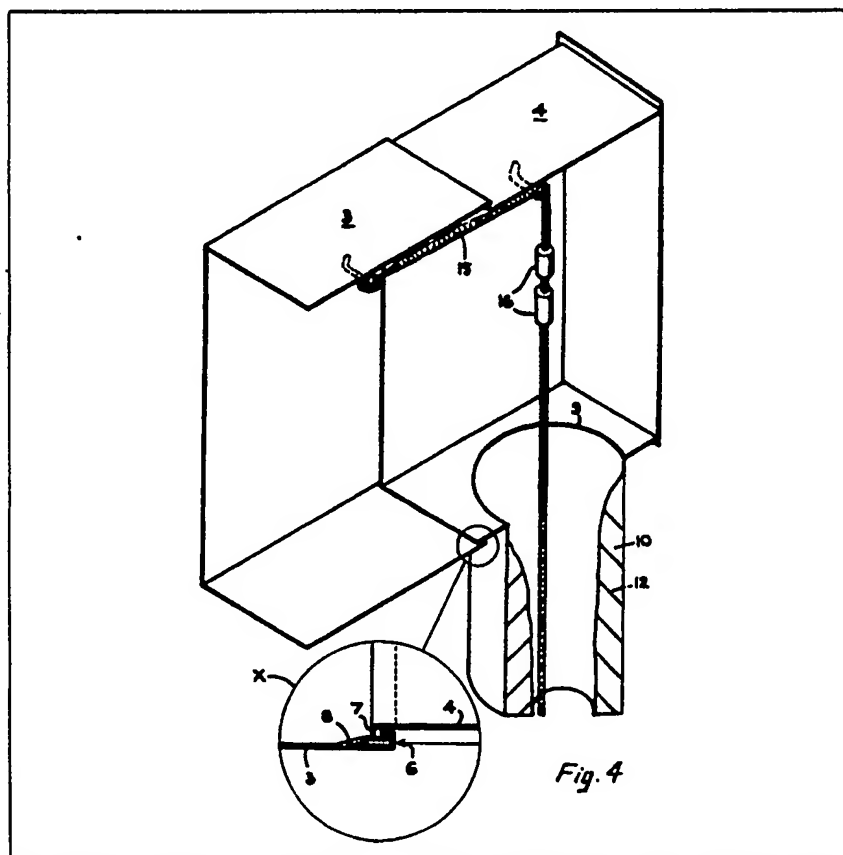
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(54) Fire escape

(57) A fire escape has an outer body section (3) and a relatively telescopic inner body section (4). The body sections (3,4) accommodate an escape chute (10) which is normally stored in the retracted body sections but which, on expansion of the body sections, can be deployed by passing the chute (10) through an aperture (9) in the base of the body section (4). The body may be made so as to be fitted in a wall of a building or pivotally mounted below a window to enable the body to be swung upwardly so as to extend through the window opening.



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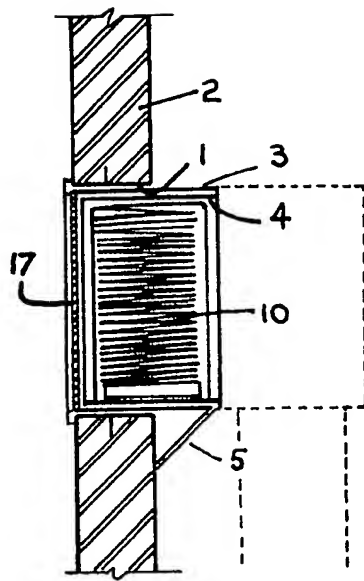


Fig. 1

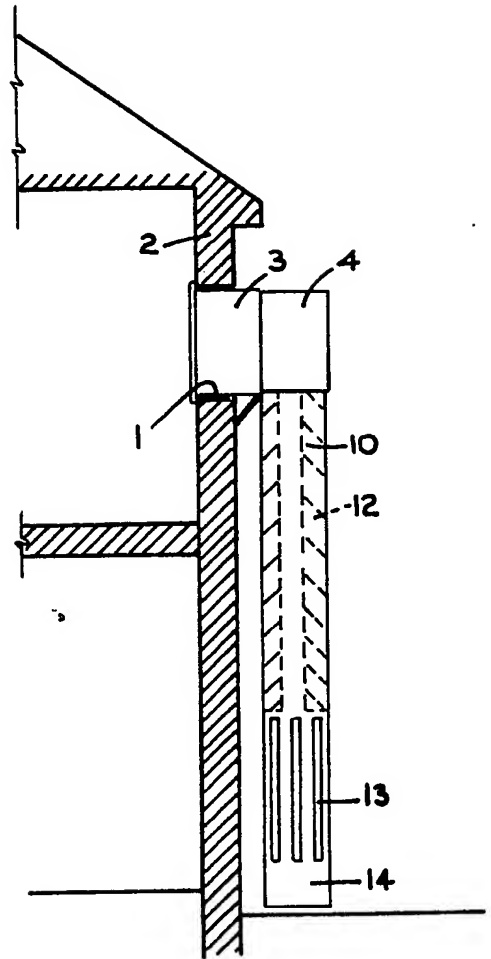


Fig. 2

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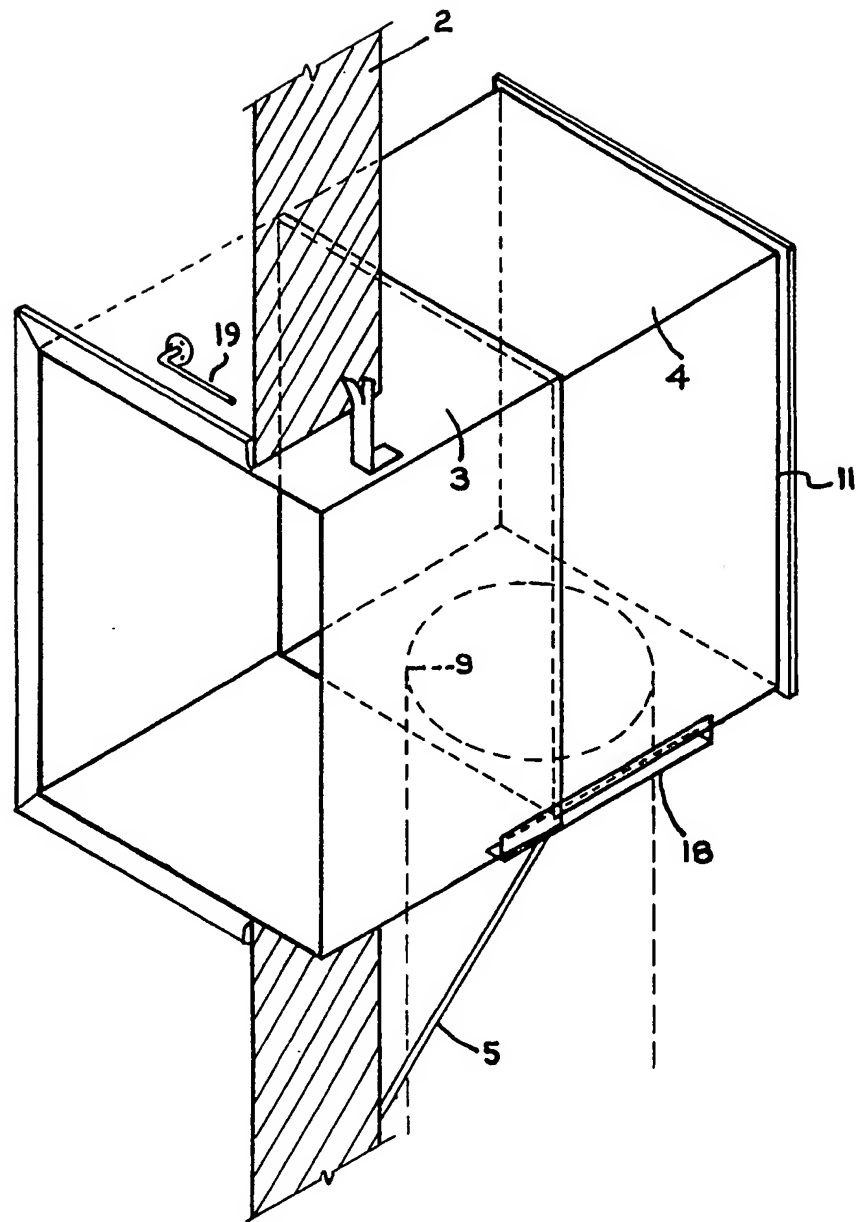
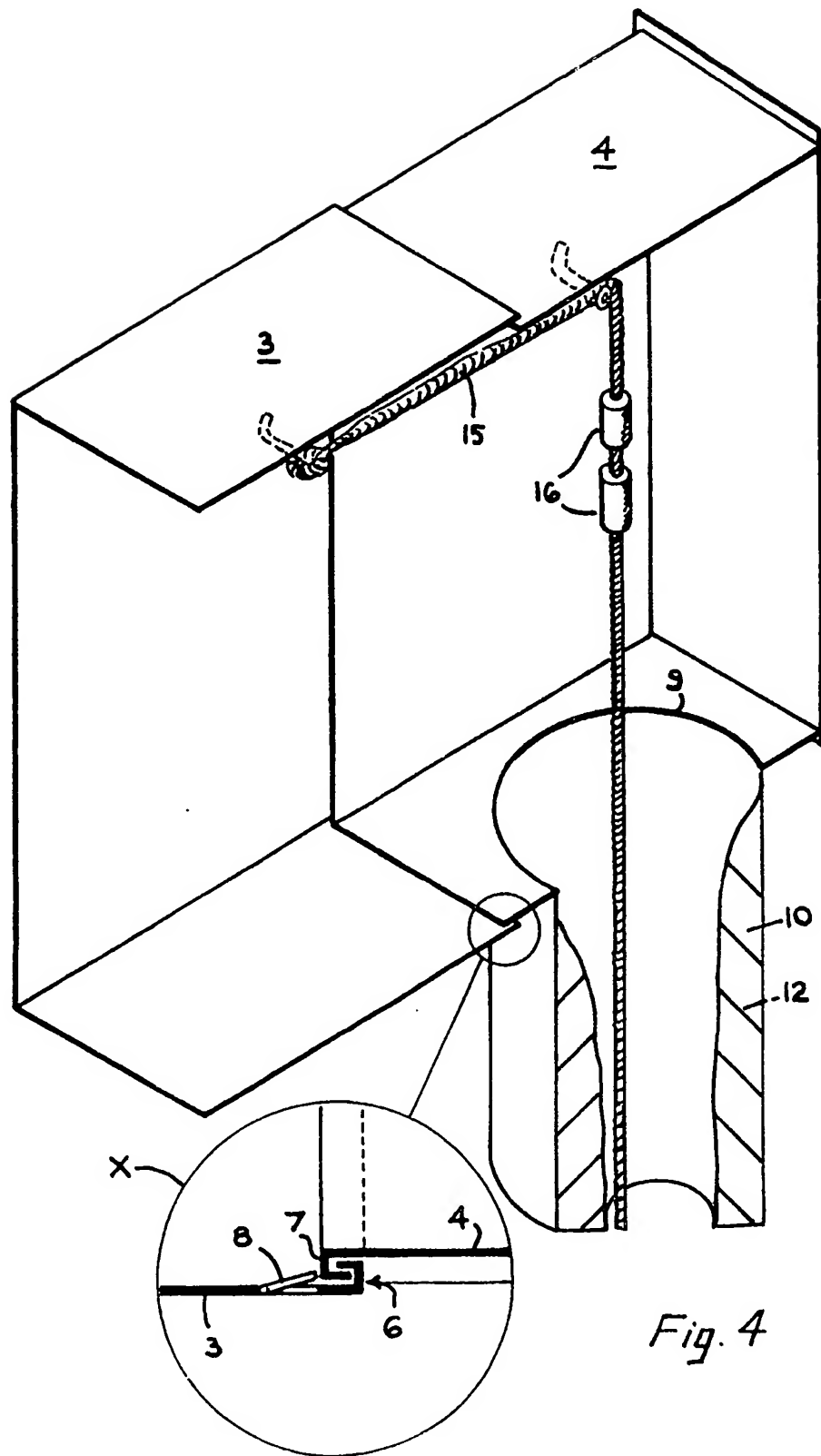


Fig. 3



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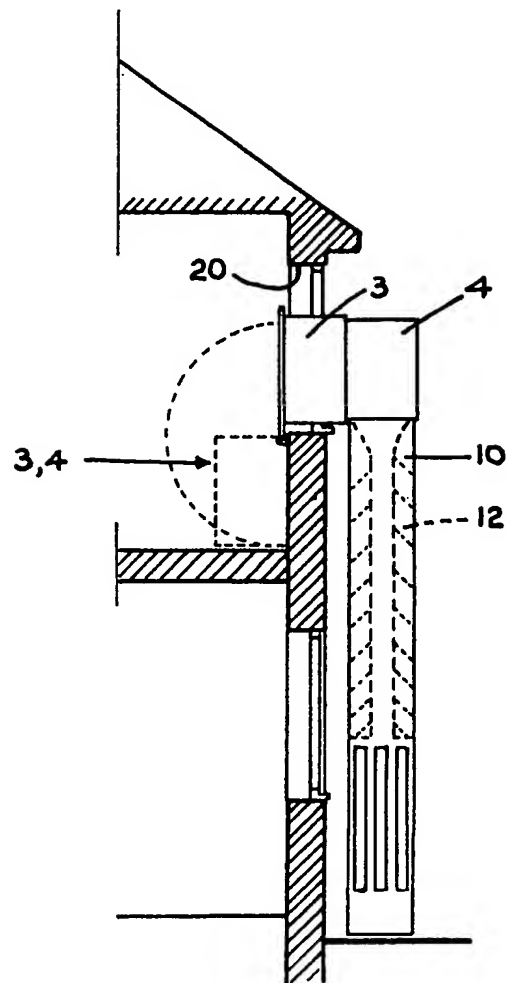


Fig. 5

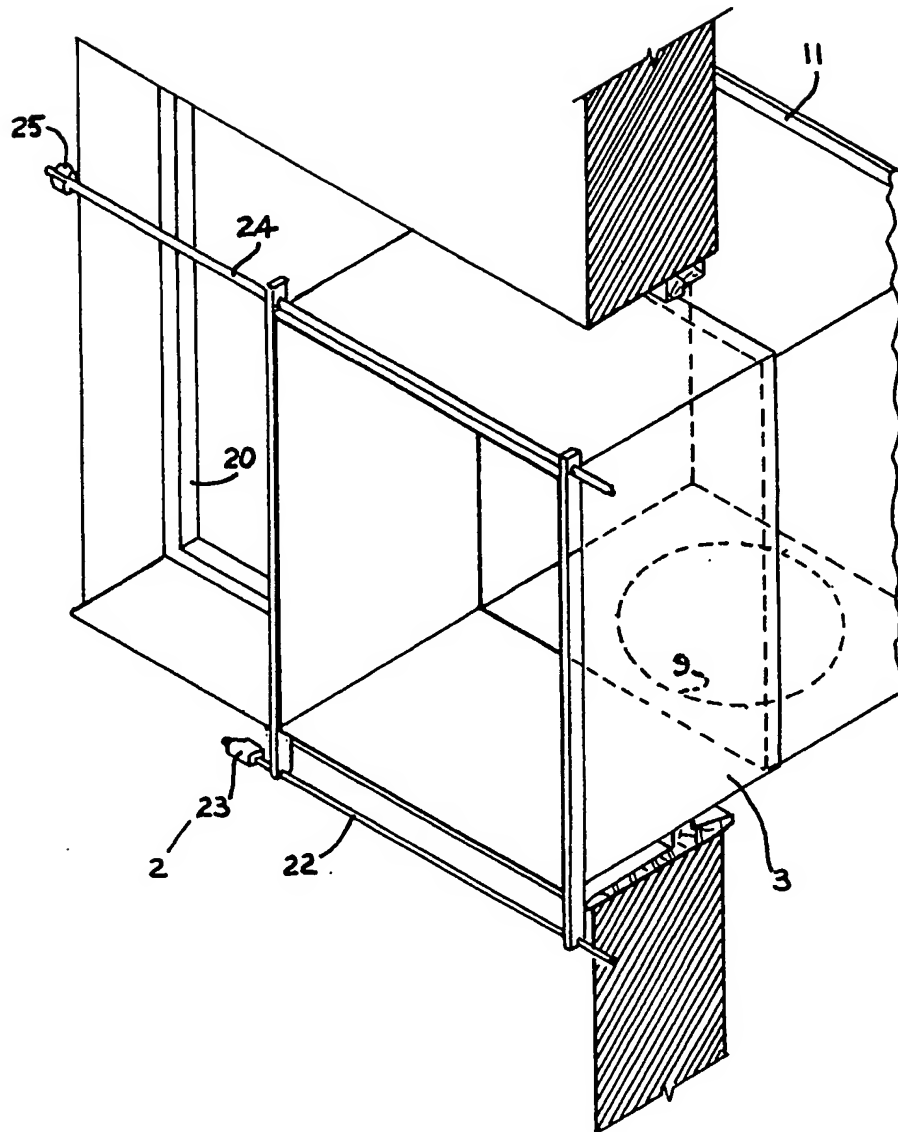


Fig. 6

SPECIFICATION

Improved fire escape

5 *Field of invention*

This invention relates to fire escapes for fitting in buildings to enable to occupants to escape in the event of fire.

10 *Background to the invention*

Known fire escapes are generally in the form of stairs or steps fixed to the outsides of buildings. Such fixed installations are costly, often ugly and can be provided at a limited number of locations only. Moreover, they are not suitable for domestic residences. The present invention aims to provide a fire escape which can be installed in a building, particularly a domestic residence, is unobtrusive and occupies a small amount of space in its stored condition but can be rapidly deployed in the event of fire to enable the occupants of the building to escape.

25 *Summary of the invention*

According to the invention a fire escape has an expandable body movable from a normal retracted condition to an operative expanded condition, and escape means which are normally stored within the retracted body but which can be deployed from the expanded body to depend therefrom to assist escape. As a result of the expansion of the body, the latter acts as a cantilever which supports the deployed escape means at a position spaced from the building in which the fire escape is fitted, thereby enabling the occupants of the building to descend the escape means without obstruction from the building or projections thereon.

Preferably, the body comprises two relatively telescopic sections which may be dimensioned and arranged so that escaping occupants walk or crawl through the expanded body before escaping down the escape means. The two body sections may be constituted by an outer section in the form of a square or rectangular tube or frame, and an inner section which is slidably received within the outer section and which is of complementary square or rectangular shape. The inner section is then apertured to provide for egress from the body, and a preferred arrangement is for the base of the inner section to have an aperture through which the escape means is deployed and through which escaping occupants leave the expanded body. It will be appreciated that the references to the inner and outer body sections refer to the disposition of these body sections in their telescoping relationship, and that in use the outer section will be attached to (or at least supported by) the building and that the inner section will be movable outwardly away from the building when the body is expanded.

The escape means may include a rope with friction block handholds which move down the rope in frictional engagement therewith, to control descent. Other forms of escape means are envisaged, such as flexible 'ladders' or any other collapsible means which can be deployed from the body to enable descent to the ground to be made.

Alternatively, or in addition, the escape means may include a chute to aid safe descent. The chute may be tubular and dimensioned to allow occupants to pass through. The internal walls of the chute may be formed with webs for restraining the downward motion of an escapee, and the chute may be collapsed in a concertina fashion in the retracted condition of the body.

The fire escape may be made so as to be fitted in a wall of a building, the outer body section then being rigidly attached in an opening in the wall at a desired escape location. A readily removable decorative panel may be provided to cover the otherwise open end of the outer body section. Alternatively, the fire escape may be positioned below a window and pivotally mounted so that in the event of fire, it can be swung through the open window and supported on the window ledge, being held by appropriate retaining means in a position ready for the inner body section to be pushed outwardly and the escape means to be deployed.

Two embodiments of fire escape according to the invention will now be described, by way of example, with reference to the accompanying drawings in which:-

Figure 1 is a sectional view showing the first fire escape in a collapsed condition and fitted in a wall of a building;

Figure 2 is a sectional view, on a reduced scale, showing the fire escape in an operative condition;

Figure 3 is a perspective view, on an enlarged scale, showing body sections of the fire escape in an expanded condition;

Figure 4 is a fragmentary sectional view of the fire escape in an expanded condition;

Figures 5 and 6 are views similar to Figs. 2 and 3 respectively, but showing the second embodiment of fire escape.

Detailed description of the drawings

Referring to Figs. 1 to 4, the fire escape is mounted in an opening 1 in a wall 2 of a building. The fire escape comprises two relatively telescopic body sections, namely an outer body section 3 and an inner body section 4. The outer body section 3 is rigidly secured in the opening 1 in the event of fire. The outer body section 3 projects from the external face of the wall 2 and is braced by brackets 5. The inner body section 4 is capable of sliding within the outer body section 3 from the collapsed inoperative position shown in Fig. 1, to the expanded operative

position shown in Figs. 2 to 4. As can be seen from the drawings, the body sections 3 and 4 are hollow, the outer section 3 being tubular and the inner section 4 being in the shape of an open-ended box. The detail shown on an enlarged scale at X in Fig. 4 illustrates how the edges of the sections 3 and 4 are formed with channels 6 and 7 respectively, which interengage to limit outward movement of the inner section 4, and how the outer section 3 has along its lower edge spring-biased tabs 8 which prevent unwanted retracting movement of the inner section 4 after this has been moved to the extended position shown in Figs. 2 to 4.

A weather-sealing strip 11 (Fig. 3) extends around the edge of the body section 4 where this abuts the edge of the body section 3 in the normal inoperative condition of the fire escape.

The inner body section 4 has in its base a circular aperture 9 above which is stored, in a concertina fashion, a tubular escape chute 10 which has a length so that when it is deployed (Fig. 2) its lower end just reaches the ground. The chute 10 has webs 12 for limiting the speed of descent of persons sliding down inside the chute, exit slits 13 on the sides of the chute 10 facing away from the wall 2, and a thick shock-absorbing base 14 to cushion the impact of occupants falling onto the lower end of the chute 10.

A rope 15 (Fig. 4) is attached to the top of the section 3, passes over a support in the section 4 and can be lowered through the aperture 9 and down inside the deployed chute 10. The rope 15 has friction blocks 16 to control the descent of escaping occupants.

In the operative condition of the fire escape shown in Fig. 1, the opening of the body section 3 is covered by a readily removable decorative panel 17 (Fig. 1), and the chute 10 is collapsed within the rectangular body sections 3 and 4. To use the fire escape, the panel 17 is removed, the section 4 pushed outwardly to the operative position shown in Figs. 2 to 4, where it is held by the tabs 8. This exposes the aperture 9 and the chute 10 and rope 15 fall to the ground. Escaping occupants walk or crawl through the opening 1 and the expanded body sections 3 and 4, lowering themselves down the rope 15 inside the chute 10. The webs 12 in the chute may be of any shape, but a preferred configuration is for the webs to project upwardly into the chute passage from one side and the other side in alternative sequence so that a small person will be repeatedly deflected from one side of the chute to the other as he descends. The spacing of the webs 12 may decrease from the top of the chute to the bottom thereof.

The body sections 3 and 4 are preferably fabricated from sheet metal, and the other components of the fire escape are made of

materials with a minimum half-hour fire resistant properties.

To increase strength of the cantilevered body sections 3 and 4, or as an alternative to the brackets 5, the body section 3 may carry projecting brackets 18 (Fig. 3) along which the body section 4 slides when it is pushed outwardly and which contribute to supporting the body section 4 when in the fully extended position. Fig. 3 also shows a handle 19 which may be fixed to the internal surface of the wall above the opening 1 to facilitate entry to the tubular space of the body sections 3 and 4.

The fire escape shown in Figs. 5 and 6 is similar to that of Figs. 1 to 4, and corresponding parts have been given the same reference numerals. The fire escape of Figs. 5 and 6 differs from that of Figs. 1 to 4 in that it is arranged to be stored below a window opening 20 (Fig. 5) and swung into the opening 20 before being brought into use. The collapsed body sections 3 and 4 are shown in broken lines in Fig. 5 in their stored position, and in full lines in the operative, extended positions. The body sections 3 and 4 can be swung into the opening 20 by virtue of being pivotally mounted on a pivot rod 22 secured by mountings 23 to the internal surface of the wall 2 below the opening 20. A further rod 24 attached to the body section 3 can be snapped into clips 25 attached to the wall, so as to retain the fire escape in position in the window opening 20.

CLAIMS

1. A fire escape having an expandable body movable from a normal retracted condition to an operative expanded condition, and escape means which are normally stored within the retracted body but which can be deployed from the expanded body to depend therefrom to assist escape.

2. A fire escape according to claim 1, wherein the body comprises two relatively telescopic sections which are dimensioned and arranged so that escapees walk or crawl through the expanded body before escaping down the escape means.

3. A fire escape according to claim 2, wherein the sections are constituted by an outer section in the form of a square or rectangular tube or frame, and an inner section which is slidably received within the outer section and which is of complementary square or rectangular shape.

4. A fire escape according to claim 2 and 3, wherein the inner section is apertured to provide for egress from the body.

5. A fire escape according to claim 5, wherein the base of the inner section has an aperture through which the escape means is deployed and through which escapees leave the expanded body.

6. A fire escape according to any of the

preceding claims, wherein the escape means include a rope with friction block handholds which move down the rope in frictional engagement therewith, to control descent.

- 5 7. A fire escape according to any of the preceding claims, wherein the escape means include a chute to aid safe descent, the chute being tubular and dimensioned to allow escapees to pass therethrough.

- 10 8. A fire escape according to claim 7, wherein internal walls of the chute are formed with inwardly projecting webs for restraining the downward motion of an escapee.

- 15 9. A fire escape according to any of the preceding claims and made so as to be fitted in a wall of a building, a readily removable decorative panel being provided to cover the otherwise open end of the body.

- 20 10. A fire escape according to any of claims 1 to 8, wherein the fire escape is made to be positioned below a window of a building and the body is pivotally mounted so that in the event of fire, the body can be swung through the open window and supported on the window ledge, being held by appropriate retaining means in a position ready for the body to be expanded and the escape means to be deployed.

- 25 11. A fire escape constructed and arranged substantially as herein particularly described with reference to Figs. 1 and 4 or as modified by Figs. 5 and 6, of the accompanying drawings.